

REMARKS

Applicants acknowledge receipt of the non-final Office Action dated December 20, 2002. In that Action, the Examiner: 1) objected to the declaration; 2) objected to claim 3; 3) rejected claims 1-3, 8-9, 15-17, 23, and 25 under 35 U.S.C. § 102(b) as being anticipated by *Hoyle et al.* (U.S. Patent No. 5,036,945); 4) rejected claims 4, 10, 13, 20-21, and 24 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.* in view of *Shah et al.* (U.S. Patent No. 6,137,747); 5) rejected claims 5-6, 14, and 22 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.* in view of *Beresford et al.* (U.S. Patent No. 6,145,615); 6) rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.* in view of *Wignall et al.* (U.S. Patent No. 4,872,526); 7) rejected claims 11-12 and 18-19 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.*; and 8) allowed claim 26.

Declaration

The original application and declaration were submitted concurrently with an application data sheet in accordance with 37 CFR 1.76 and 37 CFR 1.63(c). The addresses of the inventors were included on this application data sheet. A copy of the previously filed application data sheet is submitted with this document to ensure that the Examiner has a copy. With regards to the Examiner's objection that the declaration is undated, 37 CFR 1.63 does not seem to require a dated signature and the declaration form provided by the Office (PTO/SB/01a) does not include a space for dating each signature. Thus, the Applicants contend that the declaration and application data sheet as submitted comply with the requirements of 37 CFR 1.63 and 37 CFR 1.76.

Claim 3

Claims 3 and 13 have been amended to correct errors in their dependency.

Rejections under 35 U.S.C. 102(b)

The Examiner rejected claims 1-3, 8-9, 15-17, 23, and 25 under 35 U.S.C. § 102(b) as being anticipated by *Hoyle et al.* (U.S. Patent No. 5,036,945). In order for a reference to anticipate the scope of a claim under 35 U.S.C. 102(b), the cited "reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently

present." MPEP 706.02. The Applicants respectfully traverse these rejections and offer the following explanation.

Hoyle et al. discloses a sonic well tool having a first and second attenuation and delay apparatus for attenuating and delaying the signal traversing the tool body. The first attenuation and delay apparatus is positioned above the receiver array and includes interleaved rubber and metal like washers and a bellows section having a corrugated shape and a thin traverse dimension. The second attenuation and delay apparatus is positioned below the receiver array and includes mass loading rings surrounding the housing of the well tool as well as a bellows section having a corrugated shape and a thin traverse dimension. The tool of *Hoyle et al.* is generally configured with a sonic isolation joint 10b, including the first attenuation and delay apparatus, positioned between a transmitter 10a and a receiver 10c that includes the second attenuation and delay apparatus.

The Examiner has relied heavily on features shown in Figures 4A1 and 4A2 showing springs R1-R4 disposed within a housing D as anticipating the claimed acoustic attenuation section. The structures shown in Figures 4A1 and 4A2 is not the acoustic attenuation section of *Hoyle* but are alternative embodiments of a monopole transmitter. See Col.6, Line 49 to Col. 7, Line 42. Springs R1-R4 serve to isolate pizeoceramic cylinder D from direct contact with upper bulkhead B. Col. 6, Line 65 to Col. 7, Line 2 and Col. 7, Lines 27-32.

Further, the springs R1-R4 are not connected in series as claimed. Consecutive springs connected in series each act in the same direction and motion in a single direction will cause either expansion or compression of all of the connected springs. Springs R1 and R2 act in concert to isolate cylinder D but each acts in an opposite direction (i.e. R1 is in compression while R2 is in tension) and thus cannot be connected in series. Springs R3 and R4 act in substantially the same manner in the embodiment of Figure 4A2. Additionally, even if cylinder D can be considered a housing for springs R1 and R2 of Figure 4A1, it does not limit the deflection of the spring under an axial load.

Thus, although *Hoyle et al.* teaches an attenuation section between a transmitter and receiver it does not teach an attenuation section having one or more springs connected in series and disposed within housings that limit the deflection of the springs. The spring isolation system of Figures 4A1 and 4A2 is not equivalent to the claimed attenuation section nor would it be obvious

to modify the isolation system to be equivalent to the claimed attenuation system. Because claims 1, 16, and 25 are not anticipated by *Hoyle et al.*, their dependent claims 2-3, 8-9, 15, 17, and 23 are also not anticipated by *Hoyle et al.*

With respect to claims 2-3 and 17, *Hoyle et al.* does not teach a plurality of nodal masses disposed along the attenuation section or that those nodal masses resist compression loads on the attenuation section. The nodal masses 20c of *Hoyle et al.* (See Figures 5F and 6B) are not located in the acoustic attenuation section between the transmitter and receiver as claimed but are located on the opposite side of the receivers C10 from the transmitter. Further, the nodal masses 20c of *Hoyle et al.* do not resist compression loads as claimed in claim 3. Thus, *Hoyle et al.* does not anticipate the scope of claims 2-3 and 17.

With respect to claims 8, 9, and 23 *Hoyle et al.* does not teach a circumferential gap between the spring and its housing of between 0.010 and 0.100 inches. Although the Examiner cites Figure 4A1 as showing this gap, there is no indication in either the figure or the specification as to the dimensional limits of this circumferential gap. Thus, claims 8, 9, and 23 are not anticipated by *Hoyle et al.*

Because *Hoyle et al.* does not anticipate the scope of claims 1-3, 8-9, 15-17, 23, or 25, the Applicants respectfully request a withdrawal of the rejections under 35 USC § 102(b) based on the teachings of *Hoyle et al.*

Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 4, 10, 13, 20-21, and 24 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.* in view of *Shah et al.* (U.S. Patent No. 6,137,747), rejected claims 5-6, 14, and 22 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.* in view of *Beresford et al.* (U.S. Patent No. 6,145,615), rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.* in view of *Wignall et al.* (U.S. Patent No. 4,872,526), and rejected claims 11-12 and 18-19 under 35 U.S.C. § 103(a) as being unpatentable over *Hoyle et al.*

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior

art references, when combined, must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence.

With respect to claims 4, 10, 13, 20-21, and 24, which were rejected as being unpatentable over *Hoyle et al.* in view of *Shah et al.*, the Applicants respectfully traverse the rejections. Claims 4, 10, and 13 are dependent from claim 1 and claims 20-21 and 24 are dependent from claim 16. As discussed above, *Hoyle et al.* does not teach or disclose the features found in independent claims 1 and 16. The Examiner concludes that *Hoyle et al.* does not teach components that are coated with a resilient or attenuating material and relies on *Shah et al.* to teach the limitation.

Shah et al. discloses an acoustic transmitter having certain components coated with Teflon® to preserve relative movement between the components. Teflon is a polymer of tetrafluoroethylene (PTFE) in which the PTFE chain is completely surrounded by fluorine atoms creating a substance that is extremely slippery and inert to almost every known chemical. Teflon® is not resilient and does not significantly attenuate acoustic signals. *Shah et al.* does not teach coating components with any material other than Teflon® and therefore does not teach coating components with a resilient or attenuating material as claimed. This is further evidenced by the fact that the purpose of the resilient or attenuating material claimed is not to provide ease of relative motion between components but to provide acoustic insulation and additional acoustic damping. Therefore, because the combination of *Hoyle et al.* and *Shah et al.* does not teach all of the limitations found in claims 4, 10, 13, 20-21, and 24, the Examiner has failed to make out a *prima facie* case of obviousness and the Applicants respectfully request a withdrawal of the rejections.

With respect to claims 5-6, 14, and 22, which were rejected over *Hoyle et al.* in view of *Beresford et al.*, the Applicants respectfully traverse the rejections. Claims 5, 6, and 14 are dependent from claim 1 and claim 22 is dependent from claim 16. As discussed above, *Hoyle et al.* does not teach or disclose the features found in independent claims 1 and 16. The Examiner concludes that *Hoyle et al.* does not teach the particular spring stiffness or axial loading limits as claimed and relies on *Beresford et al.* to teach those limitations.

Beresford et al. teaches a system to isolate mechanical vibrations from a drill bit from a drill string. The system of *Beresford et al.* utilizes masses supported springs to damp the vibrations created by the rotating drill bit. *Beresford et al.* does not teach selecting a spring stiffness to support a given axial load nor does it specifically disclose selection of a spring stiffness within the ranges claimed. This is most likely because the vibrations damped in *Beresford et al.* are at significantly different frequencies than the acoustic signals attenuated in the claimed invention. Therefore, because the combination of *Hoyle et al.* and *Beresford et al.* does not teach all of the limitations found in claims 5-6, 14, and 22, the Examiner has failed to make out a *prima facie* case of obviousness and the Applicants respectfully request a withdrawal of the rejections.

With respect to claim 7, which were rejected over *Hoyle et al.* in view of *Wignall et al.*, the Applicants respectfully traverse the rejection. Claim 7 is dependent from claim 1 and, as discussed above, *Hoyle et al.* does not teach or disclose the features found in independent claim 1. The Examiner concludes that *Hoyle et al.* does not teach springs having radial holes through the coils and relies on *Wignall et al.* to teach that limitation.

Wignall et al. teaches a sonic isolation joint. The embodiment cited by the Examiner as teaching radial holes through spring coils is depicted in Figure 9, items 10b1-3 specifically. *Wignall et al.* describes sections 10b1-3 as being slotted cylindrical sections. Col. 6, line 55 to Col. 7, line 23. It is unclear how the Examiner interprets these slotted cylindrical sections as teaching a spring with radial holes through the coils. Although sections 10b1-3 are referred to as “spring” sections they do not appear to have coils like traditional springs and are merely slotted cylinders. Therefore, because the combination of *Hoyle et al.* and *Wignall et al.* does not teach all of the limitations found in claim 7, the Examiner has failed to make out a *prima facie* case of obviousness and the Applicants respectfully request a withdrawal of the rejection.

With respect to claims 11-12 and 18-19, which were rejected as being unpatentable over *Hoyle et al.*, the Applicants respectfully traverse the rejections. Claims 11 and 12 are dependent from claim 1 and claims 18 and 19 are dependent from claim 16. As discussed above, *Hoyle et al.* does not teach or disclose the features found in independent claims 1 and 16. Therefore, because *Hoyle et al.* does not teach all of the limitations found in claims 11-12 and 18-19, the Examiner has failed to make out a *prima facie* case of obviousness and the Applicants respectfully request a withdrawal of the rejection.

Conclusions

During the course of these remarks, Applicant has at times referred to particular limitations of the claims which are not shown in the applied prior art. This short-hand approach to discussing the claims should not be construed to mean that the other claimed limitations are not part of the claimed invention. They are as required by law. Consequently, when interpreting the claims, each of the claims should be construed as a whole, and patentability determined in light of this required claim construction.

If the Examiner has any questions or comments regarding this communication, he is invited to contact the undersigned to expedite the resolution of this application.

Respectfully submitted,



DEREK V. FORINASH
Reg. No. 47,231
Conley, Rose & Tayon, P.C.
P. O. Box 3267
Houston, Texas 77253-3267
(713) 238-8000
AGENT FOR APPLICANT